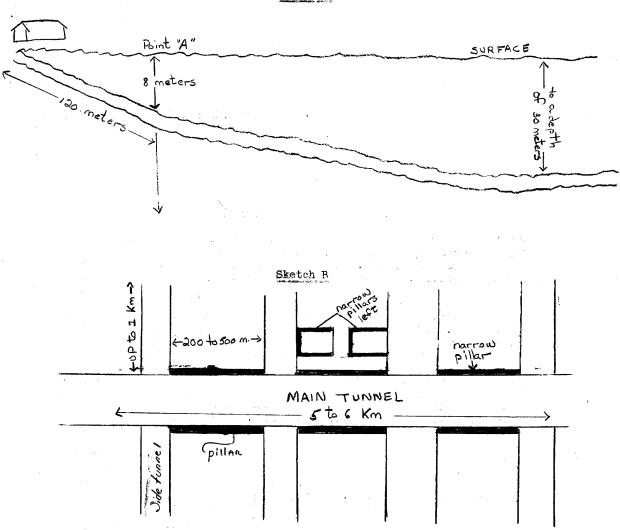
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5. In 1948 the Kukruse mixing activities covered an area about 12 km in length and three to 3½ km in width. The actual mining, which was all underground, was conducted on the following plan:

Sketch A



6. The main tunnel as well as side tunnels were between $2\frac{1}{2}$ and $3\frac{1}{2}$ meters in height and six to seven meters in width. The main tunnel was between five and six km in length. The side tunnels, of which there were 14, measured up to one km in length. Number 8 tunnel caught fire in 1947 from a carbide lamp. It burned for about one year before the cil shale fire was extinguished. In places, up to five hundred meters were completely burned out along the tunnel. It was finally put out by blocking off the tunnel and ventilating shafts and smothering the fire. Two men worked in a team in removing shale. As an example of team mining, the two men would start off a side tunnel as follows: A tunnel would be started off a side tunnel towards the next side tunnel and would be dug about half way to the next side tunnel. It would then square off and when the tunnelling was completed all shale in the square would be removed, leaving only narrow pillars for support, usually about one meter wide. Additional support was provided by shoring up the tunnel with logs. This constant robbing of the shale caused the earth to sink up to six meters over much of the surface.

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- 7. From 1945 to 1947 small deisel engines were used along the main tunnels to transport the carts. However, in 1947 small, $7\frac{1}{2}$ ton electric trolleys were brought in (with overhead trolley system). These pulled from 20 to 25 one-ton (metric) carts each to Point "A" (Sketch A) where a 10-ton electric trolley took over and hauled the cars to the surface. Electrically operated, rubber conveyor belts were used in the working tunnels to convey the mined shale to the side tunnels where track was laid for the carts. There were eight or nine of these conveyor belts. The working arrangements were set so that one shift would blast and the other two load, these arrangements being staggered in each working area, so that all were not blasting or loading at the same time. This took care of the shortage of conveyor belts.
- 8. Mining equipment of the individual miner consisted of pick, shovel and carbide lamp. In 1946 a shipment of drills, cutters, lathes and other tools was received. manufactured dynamite was used from 1945 to 1947, after which used dynamite from Germany and the USSR. Spare parts for machines were very scarce. Such as did receive were procured from numerous, differe points in the USSR. The mine was ventilated by fans and air shafts here was no gas present in the mine. The powder smell and dust following blastings were easily removed. Water in the mine was a constant problem. It was usually knee deep. Although electric pumps were installed, during the Spring they were unable to handle all of the water in the mine. The accident rate was not high. From 1945 to 1948 there were 15 accidents from cave-ins.

10.

9. The oil shale was not processed at the Kukruse mine but was transported to Kohtla Jarve where there was a large plant.

One of the prisoners in he was working on a pipe line being laid from Kohtla Jarve to Leningrad, this line was above lasters in diameter.

using processe oil from the area for their submarines. All of the rail-road locomotives in the area were using oil shale as fuel.

Kukruse was

in 1951 Soviet

political and criminal prisoners were replacing the German prisoners of war being released.

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